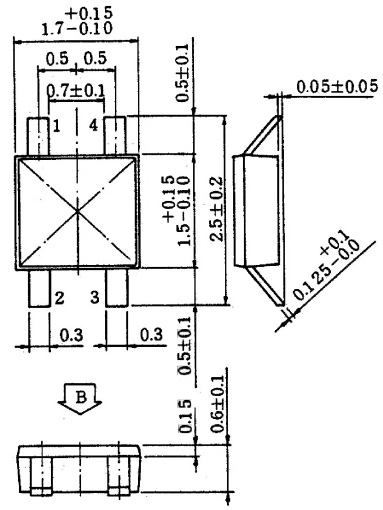
TOSHIBA HALL SENSOR GaAs ION IMPLANTED PLANAR TYPE

# THS122

HIGH STABILITY MOTOR CONTROL. DIGITAL TACHOMETER.

CRANK SHAFT POSITION SENSOR.

Unit in mm




1 (+) −3 (−) (INPUT)
2 (+) −4 (−) (OUTPUT)

| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 10-2A1A |

Weight : 0.0047g

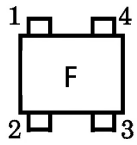
- Super Small Package.
- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. (; −55~125°C)
- Excellent Output Voltage Linearity.
- High Specific Sensitivity. : $K^* = 38 \times 10^{-2} / T$ (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| Control Current | DC | $I_C$ | 10** | mA |
| | 1s | | 15** | |
| Power Dissipation | | $P_D$ | 100** | mW |
| Operating Temperature Range | | $T_{opr}$ | −55~125 | °C |
| Storage Temperature Range | | $T_{stg}$ | −55~150 | °C |

** Mounted on a printed circuit board.

Marking




ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Internal Resistance (Input) | $R_d$ | $I_C = 5mA$ | 450 | — | 900 | Ω |
| Residual Voltage Ratio | $V_{HO} / V_H$ | $I_C = 5mA$, B = 0 / B = 0.1T | — | — | ±10 | % |
| Hall Voltage (Note 1) | $V_H$ | $I_C = 5mA$, B = 0.1T | 80 | — | 190 | mV |
| Temperature Coefficient (Note 2) | $V_{HT}$ | $I_C = 5mA$, B = 0.1T<br>T1 = 25°C, T2 = 125°C | — | — | −0.06 | %/°C |
| Linearity (Note 3) | $\Delta K_H$ | $I_C = 5mA$, B1 = 0.05T, B2 = 0.1T | — | — | 2 | % |
| Specific Sensitivity (Note 4) | K* | $I_C = 5mA$, B = 0.1T | — | 38 | — | $\times 10^{-2}/T$ |
| Internal Resistance (Output) | $R_{OUT}$ | $I_C = 1mA$ | — | — | 3200 | Ω |

Note 1 : $V_H = V_{HM} - V_{HO}$ ($V_{HM}$ is meter indication)

Note 2 : $V_{HT} = \dfrac{1}{V_{H(T1)}} \cdot \dfrac{V_{H(T2)} - V_{H(T1)}}{T2 - T1} \times 100\ (\%/°C)$ $V_{HO}$ : Residual Voltage

Note 3 : $\Delta K_H = \dfrac{K_{H(B2)} - K_{H(B1)}}{1/2\{K_{H(B1)} + K_{H(B2)}\}} \times 100\ (\%)$, $K_H = \dfrac{V_H}{I_C \cdot B}$ $K_H$ : Product Sensitivity

Note 4 : $K^* = V_H / (R_d \times I_C \times B) = K_H / R_d$

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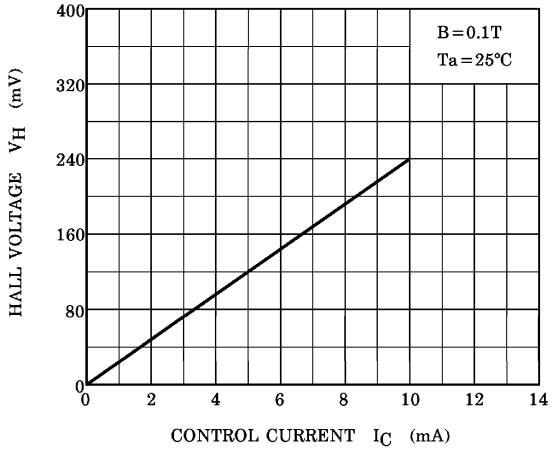
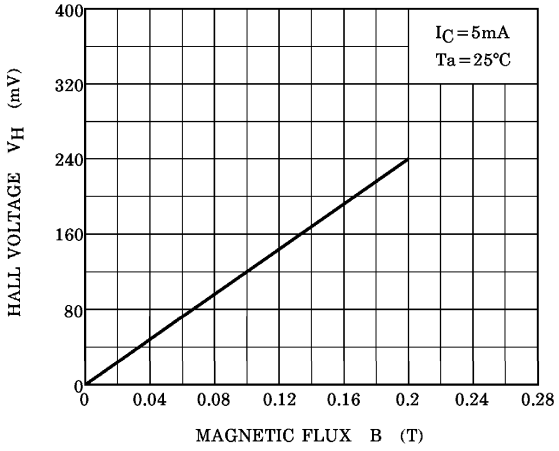
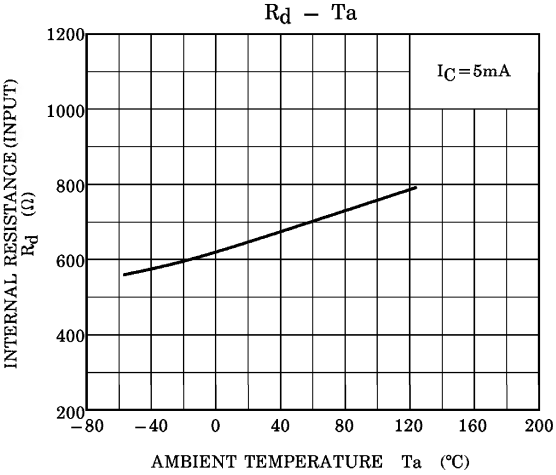
$V_H$ – $I_C$



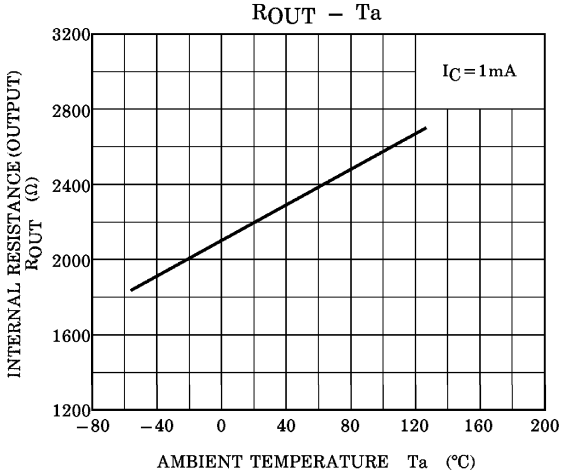

$V_H$ – B



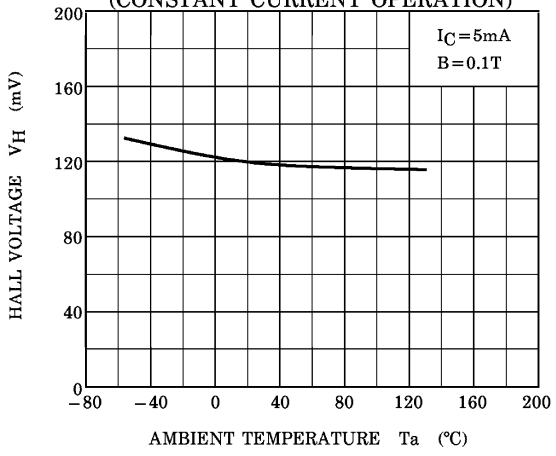

$R_d$ – Ta



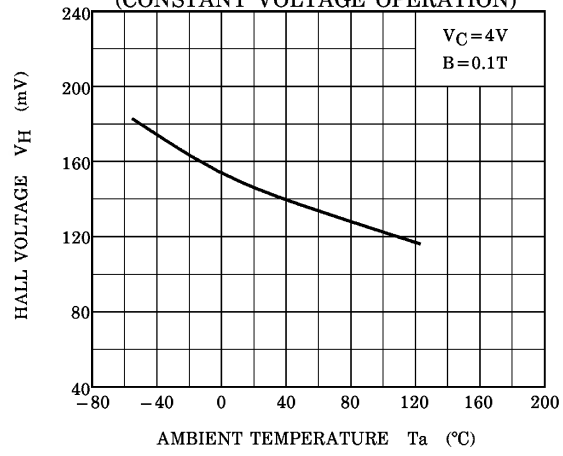

$R_{OUT}$ – Ta




$V_H$ – Ta
(CONSTANT CURRENT OPERATION)




$V_H$ – Ta
(CONSTANT VOLTAGE OPERATION)

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